

**REMARKS/ARGUMENTS**

Reexamination of the captioned application is respectfully requested.

**A. SUMMARY OF THIS AMENDMENT**

By the current amendment, Applicants basically:

1. Editorially amend the specification.
2. Cancel claims 18-19 without prejudice or disclaimer.
3. Amend claim 17.
4. Add new claims 34-35.
5. Respectfully traverse all prior art rejections.

**B. AMENDMENTS TO THE CLAIMS**

Independent claim 17 has been amended for sake of clarity. For example, independent claim 17 now requires that a flat interface is formed between the second emitter layer and the second base layer. The flat interface is supported, e.g., by Applicants' figures including Fig. 2. Paragraph [0042] of the specification has also been amended to expressly recite the terminology which, as indicated, is supported by the drawings.

Independent claim 17 has further been amended to require that the low-resistance gate region be embedded in the second base layer below the interface and spaced away from the interface in a stacking direction. As amended independent claim 17 also specifies that the stacking direction is perpendicular to the interface. The fact that low-resistance gate region is embedded is supported by Fig. 2 as well as discussion such as that found in paragraph [0042] of the specification. Paragraph [0042] of the specification has also been amended to recite expressly the claim terminology.

Independent claim 17 has also been amended to recite that a volume (comprising the second base layer) having a homogeneous impurity concentration. The volume as defined in independent claim 17 extends between the interface and a lower layer upon which the second base layer is formed. It is manifest from the drawings, e.g., Fig. 2, that the second base layer 3, beneath its interface with the second emitter layer 5 and above its boundary with the layer upon which second base layer 3 is formed, is uniform (e.g., has no disturbances or other embedded structure) and thus has a homogeneous impurity concentration. Paragraph [0042] of the specification has also been amended to expressly recite the terminology which, as indicated, is supported by the drawings.

### **C. PATENTABILITY OF THE CLAIMS**

Claims 17-19, 25 and 28-29 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 5,021,855 to Oikawa et al in view of U.S. Patent 5,005,065 to Piccone et al. Claim 27 under 35 USC 103(a) as being unpatentable over U.S. Patent 5,021,855 to Oikawa et al, U.S. Patent 5,005,065 to Piccone et al and further in view of U.S. Patent 5,539,217 to Edmond et al. All prior art rejections are respectfully traversed for at least the following reasons.

As amended, independent claim 17 requires a flat interface formed between the second emitter layer and the second base layer. By contrast, the interface between the second base layer and the emitter layer of Oikawa (U.S. Patent 5,021,855) has a bent or curved portion (see Fig. 1B and 4), and thus does not teach a flat interface.

Nor does Oikawa teach or suggest Applicants' requirement of a volume comprising the second base layer having homogeneous impurity concentration, the volume extending between the interface and a lower layer upon which the second base layer is formed. The homogeneous impurity concentration in this volume as required by Applicants facilitates a higher breakdown voltage. By contrast, the portion of Oikawa's base layer 4 that is beneath emitter layer 5 does not have homogenous impurity

concentration since Oikawa's base layer 4 is disrupted with discrete gate regions 6. Oikawa therefore has lower breakdown voltage, and accordingly cannot even address a significant problem which Applicants have successfully solved.

#### **D. MISCELLANEOUS**

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly requested.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,  
**NIXON & VANDERHYE P.C.**

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